



TRAUMA - ADULT (15 years of age and older)

Any critical trauma patient (CTP) requires effective communication and rapid transportation to the closest trauma center. If not contacted at scene, the receiving trauma center must be notified as soon as possible in order to activate the trauma team.

In Inyo and Mono Counties, the assigned base hospital should be contacted for determination of appropriate destination.

I. FIELD ASSESSMENT/TREATMENT INDICATORS

Refer to ICEMA Reference #15030 - Trauma Triage Criteria and Destination Policy.

II. BLS INTERVENTIONS

- Ensure thorough initial assessment.
- Ensure patent airway, protecting cervical spine.
- Obtain O₂ saturation (if BLS equipped).
- Administer oxygen and/or ventilate as needed.
- Keep patient warm.
- For a traumatic full arrest, an AED may be utilized, if indicated.
- Transport to ALS intercept or to the closest receiving hospital.

A. Manage Special Considerations

- **Axial Spinal Immobilization:** If the patient meet(s) any of the following indicators using the acronym (NSAID):

N-euro Deficit(s) present?
S-pinal Tenderness present?
A-ltered Mental Status?
I-ntoxication?
D-istracting Injury?

- Consider maintaining spinal alignment on the gurney, or using axial spinal immobilization on an awake, alert and cooperative patient, without the use of a rigid spine board.
- Penetrating trauma without any NSAID indicators are not candidates for axial spinal immobilization.

NOTE: The long backboard (LBB) is an extrication tool, whose purpose is to facilitate the transfer of a patient to a transport stretcher and is not intended, or appropriate for achieving spinal stabilization. Judicious application of the LBB for purposes other than extrication necessitates that healthcare providers ensure the benefits outweigh the risks. If a LBB is applied for any reason, patients should be removed as soon as it is safe and practical. LBB does not need to be reapplied on interfacility transfer (IFT) patients.

- **Abdominal Trauma:** Cover eviscerated organs with saline dampened gauze. Do not attempt to replace organs into the abdominal cavity.
- **Amputations:** Control bleeding. Rinse amputated part gently with sterile irrigation saline to remove loose debris/gross contamination. Place amputated part in dry, sterile gauze and in a plastic bag surrounded by ice (if available). Prevent direct contact with ice. Document in the narrative who the amputated part was given to.

Partial Amputation: Splint in anatomic position and elevate the extremity.

- **Bleeding:**
 - Apply direct pressure and/or pressure dressing.
 - To control life-threatening bleeding of a severely injured extremity, consider application of tourniquet when direct pressure or pressure dressing fails.
- **Chest Trauma:** If a wound is present, cover it with an occlusive dressing. If the patient's ventilations are being assisted, dress wound loosely, (do not seal). Continuously reevaluate patient for the development of tension pneumothorax.
- **Flail Chest:** Stabilize chest, observe for tension pneumothorax. Consider assisted ventilations.

- **Fractures:** Immobilize above and below the injury. Apply splint to injury in position found except:
 - **Femur:** Apply traction splint if indicated.
 - **Grossly angulated long bone with distal neurovascular compromise:** Apply gentle unidirectional traction to improve circulation.
 - **Check and document distal pulse before and after positioning.**
- **Genital Injuries:** Cover genitalia with saline soaked gauze. If necessary, apply direct pressure to control bleeding. Treat amputations the same as extremity amputations.
- **Head and Neck Trauma:** Place brain injured patients in reverse Trendelenburg (elevate the head of the backboard 15 - 20 degrees), if the patient exhibits no signs of shock.
 - **Eye:** Whenever possible protect an injured eye with a rigid dressing, cup or eye shield. Do not attempt to replace a partially torn globe, stabilize it in place with sterile saline soaked gauze. Cover uninjured eye.
 - **Avulsed Tooth:** Collect teeth, place in moist, sterile saline gauze and place in a plastic bag.
- **Impaled Object:** Immobilize and leave in place. Remove object if it interferes with CPR, or if the object is impaled in the face, cheek or neck and is compromising ventilations.
- **Pregnancy:** Where axial spinal stabilization precaution is indicated, the board should be elevated at least 4 inches on the right side for those patients who have a large pregnant uterus, usually applies to pregnant females greater than or equal to 24 weeks of gestation.
- **Traumatic Arrest:** CPR if indicated. May utilize an AED if indicated.
- **Determination of Death on Scene:** Refer to ICEMA Reference #12010 - Determination of Death on Scene.

III. LIMITED ALS (LALS) INTERVENTIONS

- Advanced airway (as indicated).
 - Unmanageable Airway: Transport to the closest most appropriate receiving hospital when the patient requires advanced airway and an adequate airway cannot be maintained with a BVM device.
- Apply AED.
- Establish IV access (administer warm IV fluids when available).
 - *Unstable*: If BP is less than 90 mm Hg and/or signs of inadequate perfusion, start 2nd IV access.
 - *Stable*: Maintain IV if BP is more than 90 mm Hg and/or signs of adequate tissue perfusion.

Blunt Trauma:

- *Unstable*: Establish IV NS open until stable or 2000 ml maximum is infused.
- *Stable*: Maintain IV NS, TKO.

Penetrating Trauma:

- *Unstable*: Establish IV NS, administer 500 ml bolus one (1) time.
- *Stable*: Maintain IV NS, TKO.

Isolated Closed Head Injury:

- *Unstable*: Establish IV NS, administer 250 ml bolus. May repeat to a maximum of 500 ml.
- *Stable*: Maintain IV NS, TKO.

- Transport to appropriate hospital.

A. Manage Special Considerations

- **Axial Spinal Immobilization:** LALS personnel should remove axial spinal immobilization devices from patients placed in full axial spinal immobilization precautions by first responders and BLS personnel if the patient does not meet any of the following indicators using the acronym (NSAID):

N-euro Deficit(s) present?
S-pinal Tenderness present?
A-ltered Mental Status?
I-ntoxication?
D-istracting Injury?

- Consider maintaining spinal alignment on the gurney, or using axial spinal immobilization on an awake, alert and cooperative patient, without the use of a rigid spine board.
- Penetrating trauma without any NSAID indicators are not candidates for spinal immobilization.

NOTE: The long backboard (LBB) is an extrication tool, whose purpose is to facilitate the transfer of a patient to a transport stretcher and is not intended, or appropriate for achieving spinal stabilization. Judicious application of the LBB for purposes other than extrication necessitates that healthcare providers ensure the benefits outweigh the risks. If a LBB is applied for any reason, patients should be removed as soon as it is safe and practical. LBB does not need to be reapplied on interfacility transfer (IFT) patients.

- **Fractures:**

- **Isolated Extremity Trauma:** Trauma without multisystem mechanism. Extremity trauma is defined as those cases of injury where the limb itself and/or the appendicular skeleton (shoulder or pelvic girdle) may be injured, e.g., dislocated shoulder, hip fracture or dislocation.

- Establish IV NS, administer 250 ml bolus one (1) time.

- **Impaled Object:** Remove object upon trauma base hospital physician order, if indicated.

- **Traumatic Arrest:** Continue CPR as appropriate.

- Apply AED and follow the voice prompts.

B. Determination of Death on Scene: Refer to ICEMA Reference #12010 - Determination of Death on Scene.

- *Severe Blunt Force Trauma Arrest:* If indicated, transport to the closest receiving hospital.
- *Penetrating Trauma Arrest:* If indicated, transport to the closest receiving hospital.

- If the patient does not meet the “Obvious Death Criteria” in ICEMA Reference #12010 - Determination of Death on Scene, contact the trauma base hospital for determination of death on scene for those patients who suffer a traumatic cardiac arrest in the setting of penetrating trauma and no reported vital signs (palpable pulse and/or spontaneous respirations) during the EMS encounter with the patient.
- Resuscitation efforts on a penetrating traumatic arrest victim are not to be terminated without trauma base hospital contact.
- **Precautions and Comments:**
 - Electrical injuries that result in cardiac arrest shall be treated as medical arrests.
 - Consider cardiac etiology in older patients in cardiac arrest with low probability of mechanism of injury.
 - If the patient is not responsive to trauma-oriented resuscitation, consider medical etiology and treat accordingly.
 - **Unsafe scene may warrant transport despite low potential for survival.**
 - Whenever possible, consider minimal disturbance of a potential crime scene.
- **Base Hospital Orders:** May order additional fluid boluses.

IV. ALS INTERVENTIONS

- Advanced Airway (as indicated):
 - Unmanageable Airway: If an adequate airway cannot be maintained with a BVM device; **and** the paramedic is unable to intubate or perform a successful needle cricothyrotomy (if indicated), **then** transport to the closest receiving hospital and follow ICEMA Reference #8120 - Continuation of Care.
- Monitor ECG.
- Establish IV/IO access (administer warm IV fluids when available).
 - *Unstable:* If BP is less than 90 mm Hg and/or signs of inadequate perfusion, start 2nd IV access.

- *Stable:* Maintain IV if BP is more than 90 mm Hg and/or signs of adequate tissue perfusion.
- For Tranexamic Acid (TXA) administration for blunt or penetrating traumas meeting inclusion and exclusion criteria below:

Inclusion Criteria	Exclusion Criteria
Within three (3) hours of injury, the prehospital use of TXA should be considered for all blunt or penetrating trauma patients with signs and symptoms of hemorrhagic shock that meet any one (1) of the following inclusion criteria: <ul style="list-style-type: none">• Systolic blood pressure of less than 90 mm Hg at any time during patient encounter.• Significant blood loss and a heart rate more than 120.• Bleeding not controlled by direct pressure or tourniquet.	<ul style="list-style-type: none">• Any patient less than 15 years of age.• Any patient more than three (3) hours post-injury.• Penetrating cranial injury.• Traumatic brain injury with brain matter exposed.• Documented cervical cord injury with motor deficits.

Blunt Trauma:

- *Unstable:* Administer IV NS until stable or 2000 ml maximum is infused.
- For signs of hemorrhagic shock meeting inclusion criteria above, administer TXA per ICEMA Reference #7040 - Medication - Standard Orders.
- *Stable:* Maintain IV NS, TKO.

Penetrating Trauma:

- *Unstable:* Administer IV NS 500 ml bolus one (1) time.
- For signs of hemorrhagic shock meeting inclusion criteria above, administer TXA per ICEMA Reference #7040 - Medication - Standard Orders.
- *Stable:* Maintain IV NS, TKO.

Isolated Closed Head Injury:

- *Unstable:* Administer IV NS 250 ml bolus, may repeat to a maximum of 500 ml
- *Stable:* Maintain IV NS, TKO.
- Transport to appropriate hospital.
- Insert nasogastric/orogastric tube as indicated.

A. Manage Special Considerations

- **Axial Spinal Immobilization:** ALS personnel should remove axial spinal immobilization devices from patients placed in full axial spinal immobilization precautions by first responders and BLS personnel if the patient does not meet any of the following indicators using the acronym (NSAID):

N-euro Deficit(s) present?
S-pinal Tenderness present?
A-ltered Mental Status?
I-ntoxication?
Distracting Injury?

- Consider maintaining spinal alignment on the gurney, or using axial spinal immobilization on an awake, alert and cooperative patient, without the use of a rigid spine board.
- Penetrating trauma without any NSAID indicators are not candidates for spinal immobilization.

NOTE: The long backboard (LBB) is an extrication tool, whose purpose is to facilitate the transfer of a patient to a transport stretcher and is not intended, or appropriate for achieving spinal stabilization. Judicious application of the LBB for purposes other than extrication necessitates that healthcare providers ensure the benefits outweigh the risks. If a LBB is applied for any reason, patients should be removed as soon as it is safe and practical. LBB does not need to be reapplied on interfacility transfer (IFT) patients.

- **Chest Trauma:** Perform needle thoracostomy for chest trauma with symptomatic respiratory distress.

➤ **Pain Relief for Acute Traumatic Injuries:**

- Administer an appropriate analgesic per ICEMA Reference #11140 - Pain Management - Adult. Document vital signs and pain scales every five (5) minutes until arrival at destination.
 - Consider Ondansetron per ICEMA Reference #7040 - Medication - Standard Orders.
 - Patients in high altitudes should be hydrated with IV NS prior to IV pain relief to reduce the incidents of nausea, vomiting, and transient hypotension, which are side effects associated with administering IV Fentanyl. Administer IV NS 250 ml bolus one (1) time.
- **Impaled Object:** Remove object upon trauma base hospital physician order, if indicated.
 - **Traumatic Arrest:** Continue CPR as appropriate.

➤ Treat per ICEMA Reference #11070 - Cardiac Arrest - Adult.

B. Determination of Death on Scene: Refer to ICEMA Reference #12010 - Determination of Death on Scene.

- *Severe Blunt Force Trauma Arrest:* If indicated, pronounce on scene.
- *Penetrating Trauma Arrest:* If indicated, transport to the closest receiving hospital.
- If the patient does not meet the “Obvious Death Criteria” per ICEMA Reference #12010 - Determination of Death on Scene, contact the trauma base hospital for determination of death on scene for those patients who suffer a traumatic cardiac arrest in the setting of penetrating trauma with documented asystole in at least two (2) leads, and no reported vital signs (palpable pulse and/or spontaneous respirations) during the EMS encounter with the patient.
- Resuscitation efforts on a penetrating traumatic arrest victim are not to be terminated without trauma base hospital contact.
- **Precautions and Comments:**
 - Electrical injuries that result in cardiac arrest shall be treated as medical arrests.

- Consider cardiac etiology in older patients in cardiac arrest with low probability of mechanism of injury.
- **Unsafe scene may warrant transport despite low potential for survival.**
- Whenever possible, consider minimal disturbance of a potential crime scene.
- **Base Hospital Orders:** May order additional medications and/or fluid boluses.

V. REFERENCES

<u>Number</u>	<u>Name</u>
7040	Medication - Standard Orders
8120	Continuation of Care
11070	Cardiac Arrest - Adult
11140	Pain Management - Adult
12010	Determination of Death on Scene